

ENTOMOLOGY.—*New genera and species of lady-beetles related to Serangium Blackburn (Coleoptera: Coccinellidae).*<sup>1</sup> EDWARD A. CHAPIN, U. S. National Museum.

This paper has been prepared primarily to supply names for certain species of coccinellid beetles of economic importance. In the course of the work dissections of representatives of a great many genera were made, and it became evident that in many places the accepted classification of the family is faulty. More attention must be paid to the structures of the head and abdomen before a system can be outlined that will be justified by the morphology of the species involved. The division of the family into its major groups will, I believe, be based mainly on the structure of the mandible. Such a system was suggested in 1843 by Redtenbacher.<sup>2</sup>

Thanks are due to Miss Hazel Bowen, who has prepared the figures illustrating the essential characters of the genera discussed.

The genera and species considered in this paper form a very compact group within the family Coccinellidae. This group is the Oeneini of Casey, 1899, minus the genus *Oeneis* Mulsant, 1850. As the species placed in *Oeneis* must be associated with *Cryptognatha* Mulsant, 1850, and not with *Delphastus* Casey, 1899, and as the name *Oeneis* is not available for use in the Coccinellidae because of its prior use in Lepidoptera by Hübner, the tribal name Oeneini must be abandoned. It seems undesirable at present to propose a new name in view of our lack of exact knowledge of the structure of most of the small Coccinellidae.

It is advisable here to discuss certain generic segregates that have been presumed to be related to this group:

*Lioscymnus* Champion, 1913, is determined, after an examination of a paratype of the type species, to be a synonym of *Delphastus*.

*Delphastobia* Casey, 1924, is determined, after examination of the type species and specimen, to be a chrysomelid related to or belonging to the genus *Lamprosoma*.

*Delphastopsis* Casey, 1924, is determined, after examination of the type species and specimen, to be close to and possibly a member of the genus *Scymnillus*.

*Semichnoodes* Weise, 1892, is, according to notes by Sicard, 1909, not related to *Serangium*.

*Serangium monticola* Sicard, 1909, is, according to the original description and figure, not related to *Serangium*.

The species belonging to this group have the following characters in com-

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution. Received January 15, 1940.

<sup>2</sup> *Tentamen dispositionis generum et specierum coleopterorum . . .*, 32 pp., Vido-bonae, 1843. Reprinted in Germar's *Zeitsch. Ent.* 5: 113-132. 1844.

mon: Form very compact; head convex in front; antennae with the terminal segment spatulate and very long in comparison with other segments; pronotum finely margined throughout; prosternum strongly developed anteriorly as a plate protecting the mouth parts when head is in position of repose, notched on each side near lateral margins for the reception of the antennae; elytral epipleura moderately broad, with cavities for the reception of the tips of the middle and posterior femora; legs received in deep cavities on under side of body, those for the front legs being on the prosternum, for the middle legs on the suture separating the meso- and metasternum and for the hind legs mostly on the first abdominal sternite; femora broad and flat, completely concealing the tibiae when legs are retracted; abdomen with five visible sternites, the second, third, and fourth being quite short in comparison with the first and fifth.

After the elimination of the genera mentioned above, there remain two described genera having the characteristics listed in the preceding paragraph and two as yet unnamed. These four may be separated in the following manner:

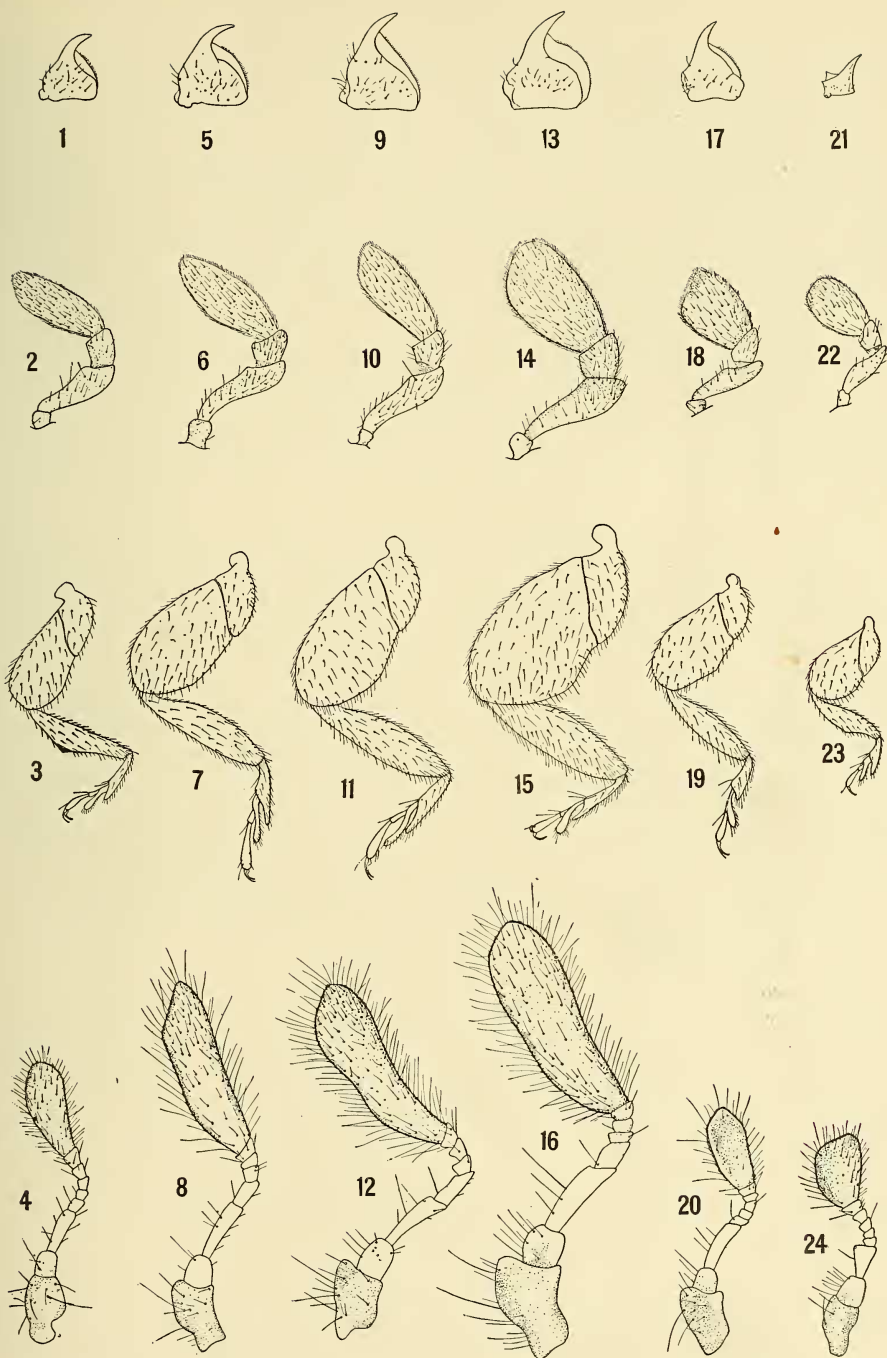
1. Antennae 8-segmented; size large (length 2-2.5 mm); middle and hind tibiae not angulate externally; Oriental region. . . . . *Catana*, new genus
- Antennae 9-segmented; size small to medium (up to 2 mm) . . . . . 2
2. Middle and hind tibiae slender, not angulate externally; size medium (1.5-2 mm); Oriental, Ethiopian, and Australian regions. . . . .
- . . . . . *Serangium* Blackburn
- Middle and hind tibiae angulate externally. . . . . 3
3. Third segment of antennae obtriangular, twice as wide at apex as fourth segment; tibiae without teeth at apex of angulation; size small (about 1 mm); Ceylon. . . . . *Serangiella*, new genus
- Third segment of antennae cylindrical, not much wider at any point than fourth; tibiae with usually two denticles at angulation of tibiae; size small to medium (0.8-1.5 mm); New World. . . . . *Delphastus* Casey

#### **Delphastus Casey, 1899**

While it is not possible at present for me to give a key to all the species, it is desirable to give names to two species that are frequently submitted for identification. The essential characters of the type species of the genus, *Delphastus pusillus* (LeConte), are illustrated in Figs. 1-4.

#### **Delphastus nebulosus, n. sp.**

Length 10 mm, width 0.8 mm, altitude 0.5 mm. Pale yellow-brown, legs whitish, elytra each with a single basal castaneous spot of indefinite extent. Integuments shining. Head not visibly punctured except for a very few minute setigerous punctures. Scutellum very small, not visibly punctured. Elytra without visible punctures, but with pellucid dots grouped along the suture and lateral margin and on apical portion. Two or three setae occur on each elytron in the region of the humeral callus, and a few very short setae along the lateral margin toward the apex; otherwise the elytra are glabrous. The dark spot extends along base from near scutellum to beyond humeral callus and backward to just beyond basal third. The margin of the spot is not sharp but the area covered is fairly constant in the series of specimens examined. Under parts not visibly punctured except for the apical abdominal



Figs. 1-4.—*Delphastus pusillus* (LeConte): 1, Mandible; 2, maxillary palpus; 3, hind leg; 4, antenna. Figs. 5-8.—*Catana clauseni*, n. sp. Figs. 9-12.—*Catana parcesetosa* (Sicard). Figs. 13-16.—*Catana spilota* (Weise). Figs. 17-20.—*Serangium maculigerum* Blackburn. Figs. 21-24.—*Serangiella flavescens* (Motschulsky).

sternite, which is finely and densely punctured and conspicuously pubescent. Femora shining, impunctate. Middle and hind tibiae with two small denticulations on outer margin at apex of angulation.

*Type and 17 paratypes.*—U.S.N.M. no. 53941.

*Type locality.*—Puerto Rico. Type and seven paratypes from Villalba, November 15, 1932, R. G. Oakley (San Juan no. 3195); six paratypes from Rio Piedros, March 19, 1913, T. H. Jones (P.R.S.G.A.Acc. 274-13); one paratype from same locality, January 25, 1914 (P.R.S.G.A.Acc. 16-14); one paratype from Barceloneta, March 22, 1932 (San Juan no. 2069); one from Santurce, April 1, 1932 (San Juan no. 2121); and one from Ponce, March 13, 1933, R. G. Oakley (San Juan no. 3796).

*Remarks.*—*D. nebulosus* is most closely related to *D. pallidus* (LeConte) but is distinguished from that species by the spot on the elytron and by the smooth and polished side pieces of the metathorax (in *D. pallidus* sclerites are finely alutaceous). While *D. pallidus* is known from Cuba as well as from Florida, it is not known from Puerto Rico, and *D. nebulosus* is known from Puerto Rico only.

#### *Delphastus collaris*, n. sp.

Length 1.3 mm, width 1.0 mm, altitude 0.5 mm. Deep piceous; male with head, entire prothorax, and legs pale yellowish brown, female with head, under part of prothorax, and legs somewhat paler. Integuments shining. Head not very convex, sparsely and irregularly set with a mixture of very fine and moderately coarse punctures, some of which are setigerous. Pronotum slightly more coarsely punctured, very sparsely hairy, anterior angles bent down outside the fine marginal line, which cuts across the angle and which is very fine anteriorly. Scutellum with only two or three punctures. Elytra distinctly and rather densely though not coarsely punctured, sparsely set with erect hairs. Metasternum finely and rather sparsely punctured, the side pieces finely alutaceous. First abdominal sternite punctured as metasternum, second sternite with a complete, third and fourth sternites with an incomplete, row of punctures, fifth sternite finely and sparsely punctured. Femora not visibly punctured. Denticles on tibiae elongated into crests as in *D. pusillus* (LeConte).

*Type and 37 paratypes.*—U.S.N.M. no. 53940.

*Type locality.*—Paraiso, Canal Zone. Type and 28 paratypes taken January to March 1911 by E. A. Schwarz; nine paratypes taken March to April 1911 by A. H. Jennings. In addition to the type material I have referred to this species two specimens from Porto Bello, Panama, February 15-24, 1911, E. A. Schwarz; one specimen from Panama City, April 30, 1911, A. H. Jennings; and five specimens from El Cermeno, April-May 1938, J. Zetek (Zetek no. 4401).

*Remarks.*—This species is easily separated from all species of *Delphastus* known to me by the strong punctures on the second to fourth sternites and in the male by the entirely pale prothorax.

#### *Catana*, n. gen.

*Serangium* auct. nec Blackburn, 1889, p. 187.

Coccinellidae of nearly hemispherical form, always slightly longer than greatest width, altitude greater than half the transverse diameter (the three dimensions approaching the ratio 8:7:4). Head convex, eyes relatively coarsely faceted, very slightly emarginate adjacent to antennal sockets, without canthus; distance between inner margins of antennal sockets equal



to three-fourths distance between eyes; antennal sockets moderately large, with beaded margin, the marginal bead continuous around the clypeus but finer across anterior margin of clypeus; clypeus transverse anteriorly with rounded angles; antenna 8-segmented, first segment stout, second globular, third elongate, subcylindrical, as long or slightly longer than fourth to seventh combined, fourth longer than fifth, sometimes showing the beginning of a division and therefore morphologically equal to fourth and fifth combined, fifth to seventh short and subequal, eighth long, broad and thin, setigerous, longer than second to seventh combined; mandible with slender apical portion somewhat curved, prostheca conspicuous; maxillary palpus with terminal segment not strongly inflated. Pronotum short, strongly transverse, anterior angles acute and prominent, posterior angles acute, marginal line complete, basal margin slightly sinuate near scutellum. Prosternum strongly developed and subtruncate anteriorly, lateral portion deeply notched for reception of antennae, the median portion strongly bicarinate, the carinae strongly divergent anteriorly. Posterolateral portions deeply excavate for the reception of the front legs. Mesosternum very short. Metasternum long. All coxae widely separated, the hind coxae especially so. Femora broad, tibiae rather slender, tarsi with four distinct segments, the third about one-third length of fourth. Claws broadly toothed at base. Scutellum small, triangular. Elytra with broad, somewhat concave epipleura, which are impressed deeply for reception of apices of femora. Abdomen of five visible sternites, first and fifth long, second to fourth very short. See Figs. 5-16.

*Genotype.*—*Catana clauseni*, n. sp.

In addition to the type species, I refer the following previously described species to *Catana*: *Serangium parcesetosum* Sicard, 1929, from India, and *Serangium spilotum* Weise, 1913, from Luzon, Philippines.

These three species may be distinguished in the following manner:

- 1. Uniform pale yellow-brown.....*parcesetosum* (Sicard)  
Upper parts deep piceous, elytron with a large castaneous spot.....2
- 2. Pronotum rather densely hairy at sides; spot on elytron elliptical.....  
.....*spilotum* (Weise)  
Pronotum sparsely but evenly hairy; spot on elytron reniform.....  
.....*clauseni*, n. sp.

***Catana clauseni*, n. sp.**

Figs. 5-8

*Cryptognatha* sp. Clausen and Berry, 1932, pp. 36-40.

Length 2.3 mm; width 2 mm; altitude 1.14 mm. Head, legs, under parts, and a large reniform spot on each elytron bright castaneous, pronotum, scutellum, and rest of elytron deep piceous. Integuments shining. Front of head minutely and sparsely punctulate, vertex slightly more densely so, a fine hair arising from each puncture. Pronotum more coarsely punctured than head, the punctures sparsely and irregularly set, each furnished with a fine and moderately long hair. Scutellum with a very few fine punctures. Elytra very minutely and sparsely punctulate on disks, slightly more coarsely so on apical third and each with a regular row of fine punctures that is parallel to and near lateral margin, each puncture of the row bearing a short seta. The castaneous reniform spot on each elytron is large, commencing near scutellum and reaching to about apical fourth, its concave margin toward the suture. The spots are variable in size, but in no specimen do they coalesce either anteriorly or posteriorly. Under parts shining and minutely and sparsely punctulate except for the side pieces of the metasternum.



2. Prosternum alutaceous. . . . .3  
Prosternum shining, indistinctly punctured. . . . .4
3. Second to fourth abdominal sternites finely strigillose; metasternum without a triangular alutaceous area at side. . . . .*maculigerum* Blackburn  
Second to fourth sternites smooth and polished; metasternum with lateral triangular alutaceous area. . . . .*metasternalis*, n. sp.
4. Outer face of front femur shining, not evidently alutaceous, pronotum entirely pale. . . . .*comperei*, n. sp.  
Outer face of front femur strongly alutaceous; pronotum at most with pale front angles. . . . .5
5. Abdominal sternites highly polished, without punctures except along apical margin of fifth. . . . .*bakeri*, n. sp.  
Abdominal sternites very sparsely but distinctly punctured except fifth, which is rather densely punctured at middle. . . . .6
6. Elytra noticeably and rather strongly punctured. . . . .*japonicum*, n. sp.  
Elytral punctures visible only with high magnification. . . . .*luzonicum*, n. sp.

#### *Serangium japonicum*, n. sp.

Length 2 mm; width 1.5 mm; altitude 0.9 mm. Deep piceous, head, flanks of pronotum narrowly, and legs pale castaneous. Integuments shining. Head with a few distinct punctures more or less definitely grouped in two patches, one on each side of the median line, sparsely hairy. Pronotum finely, sparsely and very irregularly punctured. The punctures near the median line, which is narrowly impunctate, somewhat coarser than those near the lateral margin, surface sparsely hairy. Scutellum occasionally with one or two punctures, usually impunctate. Elytra moderately coarsely, densely, and evenly punctured, except that the punctures near the apical angles are somewhat coarser than the others. Elytra without vestiture except for a submarginal row of short setae. Epipleura finely punctured and sparsely hairy. Prosternum somewhat rough, meso- and metasternum polished with a few fine punctures, side pieces of metasternum alutaceous. Abdominal sternites sparsely punctured except last, which is densely punctured and finely pubescent. Front femora strongly alutaceous, middle and hind femora very sparsely punctured and finely hairy.

*Type and 15 paratypes*.—U.S.N.M. no. 53943.

*Type locality*.—Japan. Type and seven paratypes from Yokohama, where they were found feeding on *Ceroplastes rubens* by S. I. Kuwana; three paratypes labeled "Japan. Koebele" (Koebele Note no. 1263); and five paratypes from Nagasaki, taken May 20, 1922, feeding on aleurodid eggs by T. Ishii.

In addition to the type material, I ascribe to this species a single specimen from Nanking, Kiangsu Province, China, taken August 15, 1919, by H. F. Loomis.

#### *Serangium comperei*, n. sp.

Length 1.7 mm; width 1.3 mm; altitude 1.1 mm. Pale yellow-brown, pronotum sometimes infusate at base (female?), elytra piceous except for narrow basal, humeral, and apical margins, which are yellow-brown. Integuments shining. Head finely and very sparsely punctured, the punctures bearing fine, moderately strong setae. Pronotum sparsely and irregularly punctured, the punctures of two sizes, the larger ones bearing fine setae. Scutellum not visibly punctured. Elytra without visible punctures except



for a very few in the scutellar region, and one or two setigerous punctures near humeral callus. Epipleura finely and sparsely hairy. Prosternum finely and moderately densely punctured and hairy, meso- and metasternum and abdominal sternites one to four shining, without visible punctures, fifth (apical) sternite shining and impunctate laterally, finely and densely punctured and hairy at middle. Femora shining and not visibly punctured.

*Type and four paratypes.*—U.S.N.M. no. 53944.

*Type locality.*—Fiji Islands. A series of five specimens was taken at the type locality by George Compere in October or November 1899.

#### **Serangium bakeri, n. sp.**

Length 1.4 mm; width 1.1 mm; altitude 0.6 mm. Under parts, head, and sometimes portion of pronotum castaneous, legs slightly paler than sternites, upper parts generally deep piceous. Head very finely and sparsely punctured. Pronotum with a few setigerous punctures, mostly on disk. Scutellum not visibly punctured. Elytra without visible punctures, with a few long setae near scutellum, humeral callus, along basal half of suture, and on lateral margin near apex. Epipleura almost impunctate, apparently not setose. Prosternum very finely and sparsely punctured, mesosternum finely punctate and rather densely hairy, metasternum with setigerous punctures adjacent to mesosternum at middle and on the median portion, side pieces of metasternum together with the narrow side margins of the metasternum proper strongly alutaceous, abdominal sternites highly polished, without punctures except for a few along apical margin. Front femora alutaceous, middle and hind femora finely punctured and sparsely hairy.

*Type and paratype.*—U.S.N.M. no. 53945.

*Type locality.*—Luzon, Philippine Islands. The type and paratype were taken on Mount Makiling by C. F. Baker. A third specimen that appears to belong to this species was taken at Zamboanga, Mindanao, P. I., by Baker.

#### **Serangium luzonicum, n. sp.**

Length 2.2 mm; width 1.9 mm; altitude 0.6 mm. Dark castaneous, head and under parts somewhat paler. Head finely, irregularly, and rather sparsely punctured, punctures poorly defined, mostly setigerous. Pronotum with similar though slightly coarser punctures, which are largely wanting along a narrow median longitudinal line, setae sparse and not long, rather more densely set in anterior angles. Scutellum without visible punctures. Elytra distinctly and rather evenly punctured, the punctures very poorly defined, setigerous punctures present across base and in a row parallel to the lateral margin. Epipleura sparsely set with short setae. Prosternum shining, moderately densely punctured and hairy. Mesosternum very short, shining, without visible punctures. Metasternum proper shining, very sparsely set with very fine punctures, which bear short setae, side pieces strongly alutaceous, sparsely hairy. Abdominal sternites shining, first four very sparsely set with setigerous punctures, fifth rather densely punctured and hairy. Front femora strongly alutaceous, other femora shining, the hind pair moderately densely hairy.

*Type and four paratypes.*—U.S.N.M. no. 53946.

*Type locality.*—Luzon, Philippine Islands. Type and one paratype collected at Manila by W. Schultze, two paratypes taken at the same place by George Compere, and one paratype from Bacoor (9 miles south of Manila) taken by P. L. Stangl.



*Serangium metasternalis*, n. sp.

Length 1.7 mm; width 1.4 mm; altitude 0.6 mm. Dark castaneous to piceous, head and legs paler. Head very finely punctured, the punctures more densely placed toward the clypeal region, where the vestiture of fine hair is rather dense. Pronotum with the punctures coarser than those on head and gathered into two moderately dense patches on each side of the narrow smooth median line. Vestiture sparse and fine. Scutellum not visibly punctured. Elytra sparsely punctured, the punctures visible only under high magnification, without setae except near humeral callus and along lateral margin. Epipleura not visibly punctured. Prosternum evenly and rather strongly alutaceous, very sparsely hairy. Mesosternum smooth at middle, with a small patch of setae at side. Metasternum proper smooth at middle and sparsely and finely punctured; laterally there is a triangular area adjacent to the side piece that, like the side piece itself, is strongly alutaceous. Abdominal sternites one to four finely and sparsely punctured, fifth sternite much more densely punctured and moderately densely hairy. Front femora strongly alutaceous, middle and hind femora smooth and sparsely hairy.

*Type and paratype*.—U.S.N.M. no. 53947.

*Type locality*.—Luzon, Philippine Islands. The type and paratype are from Manila, collected by George Compere. With these I have associated a third specimen from Biliran Island, collected by C. F. Baker.

*Serangiella*, n. gen.

*Oeneis* Motschulsky, 1866, *nec* Mulsant, 1850.

*Cryptognatha* Crotch, 1874, *nec* Mulsant, 1850.

Coccinellidae similar in form to *Serangium*. Head convex, eyes relatively coarsely faceted, slightly emarginate adjacent to antennal sockets, without canthus; distance between inner margins of antennal sockets equal to one-half distance between eyes; antennae sockets strongly transverse, with finely beaded margin, which is apparently not continuous across anterior margin of clypeus; clypeus very short and strongly transverse: antennae 9-segmented, first segment stout, second stout and but little more than half length of first, third strongly obtriangular, a little longer than second and not so long as fourth to eighth combined, these segments becoming successively wider until the eighth, which is almost as wide as the third, ninth segment almost as long as third to eighth combined, width equal to more than half its length; mandible very small, roughly quadrate, the inner or cutting margin feebly curved, the outer margin acutely angulate just before middle of length, prosthema apparently not present; terminal segment of maxillary palpus rather strongly inflated, subtruncate apically. Pronotum short, strongly transverse, anterior angles slightly prominent and strongly rounded, posterior angles acute, marginal line complete though very fine anteriorly. Prosternum strongly developed, truncate anteriorly, deeply notched laterally for reception of antennae, median portion strongly bicarinate, the carinae strongly divergent anteriorly. Mesosternum extremely short. Metasternum long and broad, all coxae widely separated, the hind coxae especially so. Femora broad, middle and hind tibia conspicuously angulate externally beyond middle, tarsi with four distinct segments, the third half as long as but of same diameter as fourth. Claws thickened at base but without distinct tooth. Scutellum small, triangular. Elytra with rather narrow somewhat concave epipleura, impressed for reception of apices of femora. Abdomen of five visible sternites, as in *Catana*.

*Genotype*.—*Oeneis flavescens* Motschulsky, 1866.

Although I have been able to examine only the one species, I feel reasonably certain that the other two Ceylonese species described by Motschulsky (1866, p. 423), *Oeneis laterale* and *O. nigrifulum*, also should be referred to this genus. In fact, it is not evident from the original description that the three species are truly distinct. Figs. 21-24.

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ENTOMOLOGY—*Siphonaptera from Western United States.*<sup>1</sup> IRVING FOX, Iowa State College, Ames, Iowa. (Communicated by C. F. W. MUESEBECK.)

The following descriptions, involving three new species and a new subgenus, are based upon material in the United States National Museum and in the author's private collection. Type material is in the United States National Museum, to whose authorities the author expresses his appreciation for the privilege of studying the collections in their charge. Particular thanks are due to Dr. H. E. Ewing, of the Bureau of Entomology and Plant Quarantine, for his kindness and assistance.

## Family HYSTRICHOPSYLLIDAE

*Corypsylloides* Hubbard

*Corypsylloides* Hubbard, Pacific Univ. Bull. 37: 7. 1940.

Front reduced; frontal tubercle and notch absent. Gena much enlarged; genal ctenidium obliquely vertical consisting of six spines, the lowermost reduced in width. Eyes absent. Labial palpus 5-segmented, the last segment

<sup>1</sup> Received February 2, 1940.